In the Claims:

1. (currently amended) A method for patterning a layer on a substrate with a desired image, the method comprising the steps of:

projecting a coherent beam of electrons toward a reflector surface so that a portion of the coherent beam of electrons is reflected off the reflector surface wherein the reflector surface includes variation in a property thereof providing information that corresponds to the desired image;

projecting a portion of the coherent beam of electrons to the layer without reflecting off the reflector surface; and

maintaining the substrate including the layer in the path of the reflected radiation and in the path of the portion of the coherent beam of electrons projected without reflecting off the reflector surface so that the reflected portions of the coherent beam of electrons and portions of the coherent beam of electrons projected without reflecting off the reflector surface interfere to provide a holographic projection of the desired image and so that the holographic projection of the desired image is projected onto the layer to thereby pattern the layer with the desired image.

2. (original) A method according to Claim 1 further comprising the step of:

developing the layer so that portions thereof are maintained or removed according to the intensity of the holographic projection of the desired image thereon.

3. (original) A method according to Claim 1 wherein the layer comprises an oxide layer that is activated on exposure to portions of the holographic projection of the desired image having sufficient intensity, so that activated portions of the oxide layer can be selectively removed, maintained, or modified.

4. (original) A method according to Claim 1 wherein the layer comprises a silicon layer that is activated on exposure to portions of the holographic projection of the desired image having sufficient intensity, so that activated portions of the silicon layer can be

selectively oxidized or modified.

5. (original) A method according to Claim 1 wherein the step of projecting coherent beam of electrons further comprises generating the coherent beam of electrons from a nanotip field emitter.

6. (original) A method according to Claim 5 wherein the nanotip field emitter comprises a tip having dimensions on the order of an atom.

7. (original) A method according to Claim 1 wherein the holographic projection of the desired image comprises a Fresnel hologram.

8. (original) A method according to Claim 1 further comprising:

filtering the coherent beam of electrons reflected off the reflector surface to reduce transmission of portions of the interference pattern corresponding to defects on the reflector surface.

9. (original) A method according to Claim 1 wherein projecting the coherent beam of electrons comprises projecting two coherent beams of electrons toward the reflector surface.

10. (original) A method according to Claim 1 further comprising:

projecting coherent radiation toward a second reflector surface so that the coherent radiation is reflected off the second reflector surface to provide a second holographic projection of reflected radiation;

wherein maintaining the substrate further comprises maintaining the substrate including the layer in the path of the radiation reflected off the second reflector surface so that the second holographic projection is projected onto the layer.

11. (original) A method according to Claim 1 further comprising:

projecting a portion of the coherent beam of electrons to the layer without reflecting off the reflector surface.

12. (currently amended) A method for patterning a layer on a substrate with a desired image, the method comprising the steps of:

projecting coherent radiation along divergent paths toward a reflector surface so that the coherent radiation is reflected off the reflector surface wherein the reflector surface includes variation in a property thereof providing information that corresponds to the desired image;

projecting a portion of the coherent radiation to the layer without reflecting off the reflector surface; and

maintaining the substrate including the layer in the path of the reflected radiation and in the path of the portion of the coherent radiation projected without reflecting off the reflector surface so that the reflected radiation and the coherent radiation projected without reflecting off the reflector surface interfere to provide a holographic projection of the desired image and so that the holographic projection of the desired image is projected onto the layer to thereby pattern the layer with the desired image.

13. (original) A method according to Claim 12 further comprising the step of:

developing the layer so that portions thereof are maintained or removed according to the intensity of the holographic projection of the desired image thereon.

14. (original) A method according to Claim 12 wherein the layer comprises an oxide layer that is activated on exposure to portions of the holographic projection of the desired image having sufficient intensity, so that activated portions of the oxide layer can be selectively removed, maintained, or modified.

15. (original) A method according to Claim 12 wherein the layer comprises a silicon layer that is activated on exposure to portions of the holographic projection of the desired

image having sufficient intensity, so that activated portions of the silicon layer can be selectively oxidized or modified.

16. (original) A method according to Claim 12 wherein the step of projecting coherent radiation further comprises generating the coherent beam of electrons from a nanotip field emitter.

17. (original) A method according to Claim 16 wherein the nanotip field emitter comprises a tip having dimensions on the order of an atom.

18. (original) A method according to Claim 12 wherein the step of projecting coherent radiation comprises projecting laser radiation.

19. (original) A method according to Claim 12 wherein the holographic projection of the desired image comprises a Fresnel hologram.

20. (original) A method according to Claim 12 further comprising:

filtering the coherent radiation reflected off the reflector surface to reduce transmission of portions of the interference pattern corresponding to defects on the reflector surface.

21. (original) A method according to Claim 12 wherein projecting coherent radiation comprises projecting two beams of coherent radiation toward the reflector surface.

22. (original) A method according to Claim 12 further comprising:

projecting coherent radiation toward a second reflector surface so that the coherent radiation is reflected off the second reflector surface to provide a second holographic projection of reflected radiation;

wherein maintaining the substrate further comprises maintaining the substrate

including the layer in the path of the radiation reflected off the second reflector surface so that the second holographic projection is projected onto the layer.

23. (canceled)

24. (currently amended) A system for patterning a layer on a substrate with a desired image, the system comprising:

means for projecting a coherent beam of electrons toward a reflector surface so that a portion of the coherent beam of electrons is reflected off the reflector surface wherein the reflector surface includes variation in a property thereof providing information that corresponds to the desired image;

means for projecting a portion of the coherent beam of electrons to the substrate including the layer without reflecting off the reflector surface; and

means for maintaining the substrate including the layer in the path of the reflected portion of the coherent beam of electrons reflected and in the path of the portion of the coherent beam of electrons projected without reflecting off the reflector surface so that the reflected portion of the coherent beam of electrons and the portion of the coherent beam of electrons projected without reflecting off the reflector surface interfere to provide a holographic projection of the desired image and so that the holographic projection of the desired image is projected onto the layer to thereby pattern the layer with the desired image.

25. (original) A system according to Claim 24 wherein the layer comprises an oxide layer that is activated on exposure to portions of the holographic projection of the desired image having sufficient intensity, so that activated portions of the oxide layer can be selectively removed, maintained, or modified.

26. (original) A system according to Claim 24 wherein the layer comprises a silicon layer that is activated on exposure to portions of the holographic projection of the desired image having sufficient intensity, so that activated portions of the silicon layer can be

selectively oxidized or modified.

27. (original) A system according to Claim 24 wherein the means for projecting the coherent beam of electrons further comprises means for generating the coherent beam of electrons from a nanotip field emitter.

28. (original) A system according to Claim 27 wherein the nanotip field emitter comprises a tip having dimensions on the order of an atom.

29. (original) A system according to Claim 24 wherein the holographic projection of the desired image comprises a Fresnel hologram.

30. (original) A system according to Claim 24 further comprising:

means for filtering the portion of the coherent beam of electrons reflected off the reflector surface to reduce transmission of portions of the interference pattern corresponding to defects on the reflector surface.

31. (original) A system according to Claim 24 wherein the means for projecting the coherent beam of electrons comprises means for projecting two coherent beams of electrons toward the reflector surface.

32. (original) A system according to Claim 24 further comprising:

means for projecting coherent radiation toward a second reflector surface so that the coherent radiation is reflected off the second reflector surface to provide a second holographic projection of reflected radiation; and

means for maintaining the substrate including the layer in the path of the radiation reflected off the second reflector surface so that the second holographic projection is projected onto the layer.

33. (original) A system according to Claim 24 further comprising:

means for projecting a portion of the coherent beam of electrons to the substrate including the layer without reflecting off the reflector surface.

34. (currently amended) A system for patterning a layer on a substrate with a desired image, the system comprising:

means for projecting coherent radiation along divergent paths toward a reflector surface so that the coherent radiation is reflected off the reflector surface wherein the reflector surface includes variation in a property thereof providing information that corresponds to the desired image;

means for projecting a portion of the coherent radiation to the substrate including the layer without reflecting off the reflector surface; and

means for maintaining the substrate including the layer in the path of the reflected radiation and in the path of the portion of the coherent radiation projected without reflecting off the reflector surface so that the reflected radiation and the coherent radiation projected without reflecting off the reflector surface interfere to provide a holographic projection of the desired image and so that the holographic projection of the desired image is projected onto the layer to thereby pattern the layer with the desired image.

35. (original) A system according to Claim 34 wherein the layer comprises an oxide layer that is activated on exposure to portions of the holographic projection of the desired image having sufficient intensity, so that activated portions of the oxide layer can be selectively removed, maintained, or modified.

36. (original) A system according to Claim 34 wherein the layer comprises a silicon layer that is activated on exposure to portions of the holographic projection of the desired image having sufficient intensity, so that activated portions of the silicon layer can be selectively oxidized or modified.

37. (original) A system according to Claim 34 wherein the means for projecting coherent radiation further comprises means for generating the coherent beam of electrons from a nanotip field emitter.

38. (original) A system according to Claim 37 wherein the nanotip field emitter comprises a tip having dimensions on the order of an atom.

39. (original) A system according to Claim 34 wherein the means for projecting coherent radiation comprises means for projecting laser radiation.

40. (original) A system according to Claim 34 wherein the holographic projection of the desired image comprises a Fresnel hologram.

41. (original) A system according to Claim 34 further comprising:

means for filtering the coherent radiation reflected off the reflector surface to reduce transmission of portions of the interference pattern corresponding to defects on the reflector surface.

42. (original) A system according to Claim 34 wherein the means for projecting coherent radiation comprises means for projecting two beams of coherent radiation toward the reflector surface.

43. (original) A system according to Claim 34 further comprising:

means for projecting coherent radiation toward a second reflector surface so that the coherent radiation is reflected off the second reflector surface to provide a second holographic projection of reflected radiation; and

means for maintaining the substrate including the layer in the path of the radiation reflected off the second reflector surface so that the second holographic projection is projected onto the layer.

44. (canceled)

45. (currently amended) A system for patterning a layer on a substrate surface with a desired image, the system comprising:

a radiation source that is configured to project coherent beam of electrons toward a reflector surface so that a portion of the coherent beam of electrons is reflected off the reflector surface and so that a portion of the coherent beam of electrons is projected to the layer without reflecting off the reflector surface so that the portion of the coherent beam of electrons reflected of the reflector surface and the portion of the coherent beam of electrons projected without reflecting off the reflector surface interfere to project a holographic projection of the desired image on the layer so that the holographic projection of the desired image is used to pattern the layer with the desired image, wherein the reflector surface includes variation in a property thereof providing information that corresponds to the desired image.

46. (original) A system according to Claim 45 wherein the layer comprises an oxide layer that is activated on exposure to portions of the holographic projection of the desired image having sufficient intensity, so that activated portions of the oxide layer can be removed, maintained, or modified.

47. (original) A system according to Claim 45 wherein the layer comprises a silicon layer that is activated on exposure to portions of the holographic projection of the desired image having sufficient intensity, so that activated portions of the silicon layer can be selectively oxidized or modified.

48. (original) A system according to Claim 45 wherein the radiation source comprises a nanotip field emitter.

49. (original) A system according to Claim 48 wherein the nanotip field emitter comprises a tip having dimensions on the order of an atom.

50. (original) A system according to Claim 45 wherein the holographic projection of the desired image comprises a Fresnel hologram.

51. (original) A system according to Claim 45 further comprising:

a filter that is configured to filter the portion of the coherent beam of electrons reflected off the reflector surface to reduce transmission of portions of the interference pattern corresponding to defects on the reflector surface.

52. (original) A system according to Claim 45 wherein the radiation source comprises two radiation sources that are each configured to project a respective coherent beam of electrons toward the reflector surface.

53. (original) A system according to Claim 45 wherein the radiation source is further configured to project coherent radiation toward a second reflector surface so that the coherent radiation is reflected off the second reflector surface to project a second holographic projection of reflected radiation on the layer.

54. (original) A system according to Claim 45 wherein the radiation source projects a portion of the coherent beam of electrons to the layer without reflecting off the reflector surface.

55. (currently amended) A system for patterning a layer on a substrate surface with a desired image, the system comprising:

a radiation source that is configured to project coherent radiation along divergent paths toward a reflector surface so that the coherent radiation is reflected off the reflector surface and so that a portion of the coherent radiation is projected to the layer without

reflecting off the reflector surface so that the coherent radiation reflected of the reflector surface and the coherent radiation projected without reflecting off the reflector surface interfere to project a holographic projection of the desired image on the layer so that the holographic projection of the desired image is used to pattern the layer with the desired image, wherein the reflector surface includes variation in a property thereof providing information that corresponds to the desired image.

56. (original) A system according to Claim 55 wherein the layer comprises an oxide layer that is activated on exposure to portions of the holographic projection of the desired image having sufficient intensity, so that activated portions of the oxide layer can be removed, maintained, or modified.

57. (original) A system according to Claim 55 wherein the layer comprises a silicon layer that is activated on exposure to portions of the holographic projection of the desired image having sufficient intensity, so that activated portions of the silicon layer can be selectively oxidized or modified.

58. (original) A system according to Claim 55 wherein the coherent radiation comprises a coherent beam of electrons.

59. (original) A system according to Claim 55 wherein the radiation source comprises a nanotip field emitter.

60. (original) A system according to Claim 59 wherein the nanotip field emitter comprises a tip having dimensions on the order of an atom.

61. (original) A system according to Claim 55 wherein the coherent radiation comprises laser radiation.

62. (original) A system according to Claim 55 wherein the holographic projection of the desired image comprises a Fresnel hologram.

63. (original) A system according to Claim 55 further comprising:

a filter that is configured to filter the coherent radiation reflected off the reflector surface to reduce transmission of portions of the interference pattern corresponding to defects on the reflector surface.

64. (original) A system according to Claim 55 wherein the radiation source comprises two radiation sources that are each configured to project a respective beam of coherent radiation toward the reflector surface.

65. (original) A system according to Claim 55 wherein the radiation source is further configured to project coherent radiation toward a second reflector surface so that the coherent radiation is reflected off the second reflector surface to project a second holographic projection of reflected radiation on the layer.

66. (canceled)